

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>LP2006PC00</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/EP 03/ 06494</b>	International filing date (day/month/year) <b>19/06/2003</b>	(Earliest) Priority Date (day/month/year) <b>19/06/2002</b>
Applicant  <b>LONZA S.P.A.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**TITANIUM-VANADIUM-TIN COMPRISING CATALYST AND PROCESS FOR THE PREPARATION OF PHTHALIC ANHYDRIDE**

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP 03/ 06494

Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

Disclosed are catalytic compositions comprising oxides of titanium, vanadium and tin which are suitable for the production of phthalic anhydride by oxidizing o-xylene and/or naphthalene in the gas phase. The catalysts exhibit excellent activity and selectivity. The catalysts comprise from 2 to 15% by weight (calculated as  $V_2O_5$ ) of vanadium, from 1 to 15% by weight (calculated as  $SnO_2$ ) of tin and further comprise from 70 to 97% by weight (calculated as  $TiO_2$ ) of titanium. In a preferred embodiment the catalysts of the invention comprise up to 5% by weight (calculated as  $M_2O$ ) of at least one alkali metal, preferably lithium, potassium or rubidium, and more preferably cesium. In an even more preferred embodiment, cesium is present in an amount of from 0.01 to 2% by weight (calculated as  $Cs_2O$ ).

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## INTERNATIONAL SEARCH REPORT

International Application No

T/EP 03/06494

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01J23/22 C07C51/31 C07C51/265

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 19 43 759 A (HEYDEN CHEM FAB) 8 April 1971 (1971-04-08) claims 1-5 example 2	1-17
X	EP 0 985 648 A (NIPPON STEEL CHEMICAL CO) 15 March 2000 (2000-03-15) paragraph [0027] - paragraph [0033] paragraph [0043] - paragraph [0044] table 2	1,5,6, 8-17
X	US 4 469 878 A (KANEYASU MASATAKA ET AL) 4 September 1984 (1984-09-04) cited in the application the whole document	1,5,6, 8-17
A	EP 0 286 448 A (NIPPON STEEL CHEMICAL CO) 12 October 1988 (1988-10-12)	

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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

15 September 2003

Date of mailing of the international search report

08 11 2003

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

International Application No

T/EP 03/06494 \

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 448 898 A (SUN HSIANG-NING) 15 May 1984 (1984-05-15) -----	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/06494

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 1943759	A	08-04-1971	DE 1943759 A1	08-04-1971
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